

1.

Question 1

- | | | |
|-----|----|---|
| (a) | D; | 1 |
| (b) | A; | 1 |
| (c) | B; | 1 |
| (d) | E; | 1 |

Total 4

2.

- (a) (i) *Mark 7(a) as a whole if points for (ii) are stated in (i)*
condensation reaction / condensation reaction described;
enzyme involved / glycosidic bonds formed; 2
- (ii) long / unbranched / straight chain;
makes it insoluble / allows it to link with other cellulose molecules / allows it to
form microfibrils or fibrils or fibres; 2

3.

- (a) lowers activation energy;
relevant mechanism *e.g. brings molecules close together / reaction in smaller
steps / change in charge distribution / proton donation or acceptance / induced
fit ensuring substrates brought in correct sequence;*
including relevant reference to active site; 3
- (b) (i) add iodine (solution);
blue / black colour; 2
- (ii) heat with Benedict's (solution);
brick red / brown / orange / green / yellow colour;
(*max 1 mark if non-reducing sugar test described*) 2

4.

- | | | |
|-----|---|---|
| (a) | A protein; | 1 |
| | B fat /oil / lipid / triglyceride; | 1 |
| | C reducing sugar / named; | 1 |
| (b) | heat with acid, then neutralise / hydrolyse using enzyme;
(heat) with Benedict's (solution); | 2 |
| (c) | carbon, hydrogen, oxygen (ALL); <i>symbols neutral</i> | 1 |

Total 6

- 5.
- (a) Three fatty acids correctly shown with a glycerol molecule;
Ester link clearly labelled; 2
- (b) Not monomer units joined together repeatedly;
- (c) White fat is for storage as has a large area occupied by triglyceride;
Brown fat is for storing triglyceride;
Brown fat is for producing ATP as there are many mitochondria; 2
- 6.
- a. $C_{12}H_{22}O_{11}$ 2
- b. Add some Benedict's reagent;
Place in a water bath at 85 degrees for 10 minutes;
Observe if a red/orange ppt has formed; 2
- ii. No
No precipitate has been formed;
Copper has not been reduced from CuI to CuII 2
- 7.
- (a) (i) condensation; 1
- (b) (i) **D**; 1
- (ii) **C**; 1
- (iii) **A**; 1
- (c) absence of a double bond;
in the (hydrocarbon) chain;
unable to accept more hydrogen / saturated with hydrogen; 2 max
- Total 6
- 8.

(a)	(i)	fructose;	1
	(ii)	correctly drawn (OH group at bottom left);	1
(b)		hydrolysis;	1
(c)	(i)	<u>heat</u> with Benedict's solution (<i>disqualify if HCl added</i>); orange/brown/brick red/green/yellow colour or precipitate;	2
	(ii)	biuret test / NaOH + CuSO ₄ ; purple / violet / lilac / mauve;	2
Total			7

9.